

**Submission to the Environment, Communications, Information
Technology and the Arts Senate Legislation Committee
Inquiry into Australia and the Kyoto Protocol**

from the **Railway Technical Society of Australasia January 2004**

1. The Railway Technical Society of Australasia (RTSA) is a technical society of Engineers Australia. The RTSA now has over 800 members and hosted a major Conference on Railway Engineering in November 2002 at Wollongong with over 400 participants. The present submission outlines member concerns and draws on submissions to various Federal and State transport inquiries (including in 2000 to the Committee in its inquiry into greenhouse gases, in 2003 to the Federal Government in response to its AusLink Green Paper and to the NSW Ministerial Inquiry into Public Transport).

2. The Society supports the attached position paper of Engineers Australia re Greenhouse (Appendix A) and as such would support any move by the Australian Government to ratify the Kyoto Protocol.

We also support the findings of the Engineers Australia Sustainable Transport Taskforce. In broad summary, the recommendations of this Taskforce include:

A Taxation and fiscal policy instruments should be refined to encourage sustainable transport. The present taxation measures encourage car and truck use.

B There is a strong case for increased investment in transport infrastructure that is more sustainable and less greenhouse gas intensive. Where market forces fail, government should intervene.

C More holistic approaches that integrate considerations of impacts on health, sustainability and greenhouse gas emissions are needed when funding decisions are made.

D There is a need for research to support the implementation of transport pricing, economics and demand management technologies.

3. In general terms, both the Society and Engineers Australia considers that with the creation of a level playing field between road and rail, and a range of actions to improve the efficiency of both rail and intermodal transport options, railways in Australia can deliver considerable transport cost savings to business and the community. Environmental benefits and a reduction in Greenhouse Gas emissions will also flow as a result.

4. In our view, rail has the potential to reduce greenhouse gases by assuming more of the nation's freight and passenger tasks. Rail freight is on average three times more

energy efficient than road transport. Moving passengers by rail is also more energy efficient than by small passenger vehicles.

5. The Society notes from the Australian Greenhouse Office (AGO) website (accessed 16 Jan 2004 www.greenhouse.gov.au) "*The Australian transport sector accounts for 77.2 million tonnes of Australia's total net greenhouse gas emissions, representing 14.2 per cent of Australia's total emissions. About 88.3 per cent of these emissions come from road transport, including cars, trucks and buses.*

Australia is committed to a target for national greenhouse gas emissions of 108 per cent of 1990 levels by 2008-2012. However greenhouse gas emissions from the transport sector are growing substantially, rising by 25 per cent from 1990 levels. Latest projections indicate that emissions from the transport sector will rise by 42 per cent between 1990 and 2010. "

6. To the twelve months ended 31 October 2001, Australia's 12.4 million road vehicles travelled about 190 billion kilometres (from Australian Bureau of Statistics (ABS, 2003) SMVU estimates). This required the consumption of some 16.5 billion litres of petrol, 6.7 billion litres of diesel and 2.7 billion litres of LPG etc (ABS, 2003) with outputs including the movement of people plus 1482 million tonnes of freight.

Rail, during 2000-01 used 533 million litres of diesel (Australian Tax Office, 2002) and approximately 1800 gigaWatt hours of electric power (Rail CRC data, 2003 as cited in a 2003 Australasian Transport Research Forum (ATRF) paper "Australian Transport and Greenhouse Gas Reduction Targets" by P. Laird) to move approximately 535 million tonnes of freight and over 600 million passengers including urban light rail (Australasian Railway Association Year Book 2002). During 1997-98, domestic shipping used 439 million litres of fuel oil and diesel and domestic airlines (which is a fast growing sector) used 2152 million litres of aviation turbine fuel (Apelbaum Consulting Group - ACG, 2001).

The ATRF paper notes "*If demand for road vehicle travel was managed and growth in passenger and freight tasks was picked up by the more energy efficient public transport and rail, Australia would begin to reduce its greenhouse gas emissions and move closer to achieving its greenhouse gas target.*"

7. The RTSA invites the attention of the Senate Committee to the findings and recommendations of the 1992 detailed policy on Ecologically Sustainable Development (ESD), with a companion National Greenhouse Reduction Strategy (NGRS) that

recommended, inter alia, reducing: *"...total energy consumption in transport through improved technical and economic efficiency of urban and non-urban transportation and switching to alternative transport technologies or modes where this reduces greenhouse emissions per passenger or unit of freight"*.

8. Ratification of the Kyoto Protocol, and/or factoring into fuel prices a Greenhouse Gas Component or a Carbon Tax, would assist in transport energy conservation.

In regards to what value to use, the Society would support the views of the Bus Industry Confederation (BIC) in its submission to the Fuel Taxation Inquiry that considered a value of \$A40 per tonne of carbon dioxide *"...to be the current optimal level for carbon taxation. It is stressed this value is only relevant for the short-term; costs will increase dramatically in future years."* The use of the value of A\$40/tCO₂ gives a relevant charge level (carbon tax) of 10.7 cents per litre of diesel.

9. Given that the major use of liquid fuels in transport is in our major cities, the Society supports more attention to urban public transport. In this regard, the Society considers that current Fringe Benefit Tax arrangements, and the changes made in 2000 with the New Tax System, that favour the use of cars, and discourage the use of public transport, should be redressed.

10. A major challenge is to ensure that urban rail will be sufficiently developed in all mainland State capital cities to allow it to increase its share of urban passenger kilometers from the present 5 per cent.

In all Australian capital cities, passenger road vehicle use increased from about 67 billion kilometres (bkm) in 1991 to about 85 bkm in 2001 – an increase of some 27 per cent. A further such increase over the next decade would severely impact on their amenity. Already, as outlined below, the use of motor vehicles in Australia's capital cities is causing major problems. Hence the development of initiatives by State Governments to promote alternatives to road vehicle use. One notable example is with the stated aim of the Government of Victoria to encourage by 2020 that 20 per cent of all Melbourne's passenger journeys should be by walking, cycling or public transport.

The *Action for Transport 2010* statement as released by the NSW Government in 1998 was a step to improve public transport in Sydney. Franchising of Melbourne's trains and trams was move by the Victorian Government to try and improve public transport.

However, five years later, it is obvious that more measures are required. These measures will need to include road pricing, with particular attention to congestion pricing.

11. One funding option is a traffic demand charge in central Sydney, and the centres of other mainland capital cities, where a portion of the revenue would go to urban transport systems. The RTSA would support the investigation of such a proposal. One of the elements, which is likely to appear from any such investigation, is that for such a system to operate effectively, there needs to be an efficient public transport system. This was clearly shown in Singapore. However, as shown by the congestion-pricing scheme introduced in London in February 2003, there is latent acceptance of movement to a more rational approach to road pricing.

12. In a BTRE paper "The economic consequences of the health effects of transport emissions in Australian capital cities" presented to the 2003 Australian Transport Research Forum in Wellington, New Zealand, mid range estimates for the cost of adverse health impacts due to air pollution amounting to \$3.3 billion for the year 2000 were given. This comprises \$1.6 billion for mortality (premature death as a result of air pollution) and \$1.7 billion for morbidity (quality of life and productive capacity of people impaired or reduced). Estimates from the Australian Bureau of Statistics Survey of Motor Vehicle Usage show a total of 31.3 billion vehicle kilometres by Sydney drivers in 2001. This, coupled with the BTRE mid range health cost estimates for Sydney of \$1.5 billion suggests that if you live in Sydney, when an average vehicle goes by, it is generating community health costs of 4.8 cents per vehicle kilometre. This cost will be higher for heavy trucks, and smaller for cars.

To this may be added the Australian average road crash cost per vehicle of about 8 cents per km (using the now older BTRE estimate of \$15 billion as the cost of road crashes per year, and the ABS total of about 188 billion kilometres driven by all vehicles in 2000). It would simply not occur to most people when getting in their cars, and starting to drive, that the average road crash cost is the same order as the cost of petrol.

13. Most urban public transport operations within Australia now require significant state government support. For example, a SRA submission notes that the NSW Government pays for most of the difference between the cost of running the suburban rail network, and the fare box revenue. *"This cost \$1.3 billion in 2001-02 and is forecast to grow to \$1.5 billion in 2002-03. In 1999-00 fares paid for 26.7 per cent of the costs of running the*

suburban rail system. Last year that had fallen to 24.0% and is forecast to fall further this year to 21.7%.

The RTSA supports a move towards service quality improvements, and increasing fare box revenue with a view to generating more funding for long overdue infrastructure upgrades. However, urban rail fares are constrained, not only by political factors, but also low road pricing.

13 The Society suggests, as per its 2003 brochure "Rail for sustainable cities" that there is role for the Federal Government in assisting metropolitan areas to restructure transport networks in line with more sustainable land use patterns in order to reduce fuel use, air pollution and greenhouse gas emissions.

It is becoming increasingly obvious that we have major road traffic problems in our major cities. In the United States, over 20 per cent of Federal land transport funds are applied to urban public transport (mass transit). In addition, in New York about \$800 million a year of vehicle tolls are used to assist New York City Transit's current \$11.5 billion five year capital works programme.

The situation in Australia is very different. Federal funding to the States for urban public transport programs administered by the Department of Transport that commenced in 1974 has been characterised by two interruptions in funding in 1981-82 and 1989-90 with the cessation of such funding in 1993 when the 'Building Better Cities' programme was underway. However, the 'Building Better Cities' funding ceased in 1996. The total Federal outlay in 1999 terms between 1974 and 1999 on urban public transport programs was \$1.5 billion with a lesser amount for rail capital works, as against about \$43 billion for roads.

14. As recommended by the Fuel Taxation Inquiry that reported in 2002, the question of fuel excise indexation needs addressing.

15. A potentially new dimension in Australian land transport policy is the initiative of the Federal Government in producing the AusLink Green Paper. The approach adopted by AusLink is consistent with the findings and recommendations of the 1998 report *Tracking Australia* from the House of Representatives Standing Committee on Transport etc (the Neville Committee), the 1999 'Smorgon' report on Revitalising Rail, and the final report of the Productivity Commission's inquiry 'Progress in Rail Reform'.

However, the Society joins all State Transport Ministers in their reservations about the proposed absence of funds for urban public transport. To meet these concerns RTSA in

early 2003 proposed *AusLink Plus* to retain many of the Green Paper proposals, and include congestion pricing plus mass distance pricing for heavy trucks.

16. The RTSA submission to the AusLink Green paper (at www.rtsa.com.au) also addresses various land transport infrastructure issues including urban public transport, along with regional rail projects including rail haulage of wheat and interstate mainline track straightening to replace current sections with 'steam age' alignment.

17. The Society suggests that recent Federal Budgets could have done much more to encourage sustainable transport, which took a step backwards with cheaper cars, cheaper petrol, cheaper diesel and more expensive public transport as a result of the New Tax System.

The Society notes the address by the Secretary to the Treasury, Dr Ken Henry to the BTRE Colloquium in Canberra on 4 October 2002. Of particular note is that even *"...relatively modest rates of growth in urban traffic raise important issues, especially of urban congestion and, of course, urban air quality. And truck traffic projections raise questions about the capacity and quality of maintenance of our highways."*

"Not dealing with these issues now amounts to passing a very challenging set of problems to future generations."(emphasis added)

Dr Henry's speech later noted that, *"... broadly, there are two dimensions of possible regulatory change. The first looks to the demand side and enquires about the price signals confronting users of transport infrastructure. The second looks to the supply side and enquires about the systems for financing new transport infrastructure."*

"The former inquiry is really about discovering the scope for moving user prices closer to the social marginal costs of usage. Most of the possible action here concerns road transport."

18. The Society submits that the Government should seek to ensure that AusLink tackles head-on a need to bring road user charges nearer to the total costs imposed on the community. This will assist in both road vehicle demand management, and generating the additional revenue acknowledged (in page 32 of the Government's Green Paper on AusLink) as necessary to maintain and improve the transport network's performance.

19 The Society suggests that regional passenger rail services can assist in reducing urban sprawl, facilitate decentralisation and promote the needs of businesses and industry servicing the city from regional areas.

Tilt trains have proved popular in Queensland since their introduction between Brisbane and Rockhampton in late 1998. In 2004, Regional Fast Rail services will be progressively introduced for lines in Victoria. Why not within NSW, and linking Canberra to nearby major cities, and the rest of Australia?

20. As per earlier submissions of the Society "*...Unfortunately, while Australia boasts probably the world's most energy efficient freight trains (being the privately owned iron ore trains), much of the nation's interstate mainline network is in an unsatisfactory state. For example, the network has numerous speed-weight restrictions due to:*

- *a curve for every kilometre plus steep ruling grades from Albury to Sydney*
- *poor alignment from Sydney to Brisbane; and*
- *some 575 km or 40% of the mainline interstate track in NSW fails to meet basic fast freight train standards of no grade steeper than 1 in 66 and no curve radius tighter than 800 metres. (Between Melbourne and Perth the failure figure is only 4%)."*

21. In addition to the recently announced \$872 million package for 'patch up' track upgrades to improve interstate rail operations in New South Wales and adjacent States, poor interstate mainline track alignment deserves more attention by government. Queensland Rail's Mainline Upgrade (MLU) was an essential part of rail reform in the 1990s in that the MLU track upgrading, including 120 km of high quality deviations and hundreds of new bridges, allowed for faster and heavier freight trains. MLU also assisted the introduction of the Brisbane - Rockhampton tilt train on 6 November 1998.

22. As indicated by this Senate Committee's valued report *The Heat is On: Australia's Greenhouse Future* the Final Report of the Productivity Commission and more recent reports, a marked improvement in the quality and quantity of land transport data in Australia is required.

In this regard, we would bring to the Committee's attention a proposal put to the 1999 Inquiry of the Productivity Commission into Ecologically Sustainable Development (ESD) in order to get better data on energy use (and hence Greenhouse Gas reductions), and progress in improving energy efficiency along with promoting Ecologically Sustainable Development. The proposed recommendation was:

That each Commonwealth department and agency be required, in their annual report, to make substantial comment on progress in implementing Ecologically Sustainable Development principles, and include details of total energy use and data on energy efficiency for their relevant major operations, and the sectors of the economy for which they have responsibility.

That, via the COAG process, or other means, similar reporting measures be required for State and Territory departments and agencies, and for each publicly listed company.

Such measures would improve the level of awareness and understanding about energy use along with ESD, and the need to practice the underlying principles, plus to improve energy conservation and efficiency (and so have a counting of Megajoules used or generated etc, or tonnes of carbon dioxide emitted, as well as dollars earned or spent).

23. The issue of how much diesel fuel would be saved, with corresponding reductions in greenhouse gas emissions, from upgraded track and/or rail hauling more intercity freight, was addressed in part, by three reports in the 1990s:

- * Industry Commission (1991) *Costs and Benefits of Reducing Greenhouse Gas Emissions*
- * Energy R and D Corporation (1993) *Land Freight Transport Energy Evaluation*, and,
- * Bureau of Transport and Communications Economics (1996) *Transport and Greenhouse Costs and Options for Reducing Emissions*.

The Industry Commission (1991, Vol II, p F50-53) noted that rail investment in Benchmark levels would lead to a modal shift in long distance freight from road to rail by 1998-99 of 4.2 million net tonnes, and, there would be a fuel saving in the order of 100 million litres of diesel a year if rail was to gain 50 per cent of modal share of land freight on shorter corridors, 65 per cent on intermediate length corridors, and 80 per cent on corridors in and out of Perth (see also ERDC report, 1993).

The BTCE (1996) report examines 16 measures that could be taken to reduce energy use, and hence Greenhouse gas emissions, in transport. Of these, 'shifting some intercapital city freight from road to rail' was identified as one of five 'no regrets' measures. This was despite a conservative approach to the benefits of rail track upgrading.

It is of note that some mainline intercity rail freight operations have lower energy efficiency (eg. Sydney - Melbourne due to steep ruling grades and a "curve for every kilometre" within NSW) than the better aligned Adelaide - Perth track. In turn, and coupled with a reconstructed Hume Highway, more and more Sydney-Melbourne freight is being move by road transport for the entire haul. This pushes up fuel use - estimated (ERDC report, 1993) at some 32 million litres a year; also, construction of a new Pacific Highway without rail upgrading was estimated (loc.cit) to cost an extra 45 million litres a year.

In 2002, the BTRE has released a report of note *Greenhouse Policy Options for Transport*. This report favours optimal road pricing.

24. Clearly, a new approach to land transport within Australia is needed. Many inquiries conducted during the 1990s for the Federal Government have shown the way; and it is now quite clear that 'business as usual' with land transport is simply not good enough.

Indeed, the Deputy Prime Minister, John Anderson in May 2002 when releasing the AusLink Concept noted *"We cannot go on this way. We have to make changes now."* The Government's Green Paper on AusLink was released in November 2002, when it was stated that the White Paper would be ready in May 2003. Over 550 submissions were received. As of 16 January, the White Paper had still not been released.

25. Recent initiatives of the New Zealand government in land transport are also relevant. On 28 February 2002, the New Zealand Government announced a \$227 million Land Transport Package. The innovative package, called *Moving Forward*, uses funds raised from increasing petrol and diesel tax by 4.7 cents per litre. Petrol taxes are due to rise a further 5 cents a litre in 2005 in New Zealand. Along with generating an funds for roads, the package also includes funds for alternatives to roads, such as rail and public transport.

The aim of the package is to try to replace present transport problems, by a transport system that is *'affordable, integrated, safe, responsive and sustainable.'* A current National Road Fund will be replaced by a National Land Transport Fund. Further measures were adopted in December 2002 and throughout 2003. For more information, see

<http://www.transport.govt.nz/html/15news/land-transport-package/index.shtml>

New Zealand transport reform goes hand in hand with the decision of the New Zealand Parliament to ratify the Kyoto Protocol. To date, the Treaty has been ratified by at least 117 countries (New Zealand was the 102nd country to do so on 19 December 2002). Russia has signalled its intention to ratify and if it does so, the Protocol will enter into force.

26. Canada has also ratified the Kyoto Protocol. The Government of Canada released a Climate Change Plan for Canada on November 21, 2002 and its 2003 Budget made an investment of \$2 billion over five years in "climate change action". Canada has also embarked on transport policy reform. Why not Australia ?

APPENDIX A Policy paper of Engineers Australia regarding Greenhouse Gases (September 2003)

Engineers Australia considers that there is adequate evidence to support current scientific theories on climate change. The balance of scientific opinion is that significant warming is already occurring and will continue. Until the issue is proved conclusively, the precautionary principle should prevail.

Many members have indicated their support for Australia ratifying the Kyoto Protocol and attempting to meet its 2008 target emissions. Reasons for support include: the

future economic opportunities for Australia to become a leader in environmental technology; the need for Australia to be environmentally responsible for the benefit of future generations; and the need for Australia to be seen to be a credible member of the international community in terms of the environment.

The view of members is that any short term economic harm will be more than offset by the improved environmental and economic benefits for future generations. The probable environmental and economic outcome of not ratifying and meeting the Kyoto targets is potentially damaging for future generations.

With many countries having ratified the Protocol, there is no question that addressing the greenhouse issue is firmly on the international agenda. The international trend will be toward increasing pressure on greenhouse gas abatement activities. As a consequence, there will be an increasing demand for abatement and renewable energy technologies and practices. Australia's decision whether or not to ratify the Protocol is important on a domestic level. The decision could materially affect the development of some existing sectors of the economy and either encourage or discourage new growth industries.

Australia is in a key position to be a leader in sustainable energy and environmental protection. In Australia we have a great opportunity by way of engineering knowledge and skills to develop major new industries in renewable energy technologies both for grid connected and remote area power supplies and in environmental protection and remediation technologies. We should be recognised as a lead country in applying solar power technologies, energy efficiency and water conservation. If we embrace this opportunity early, we stand to gain enormously from international trade in intellectual property and the new technologies that will emerge.

RECOMMENDATIONS

- Ratify the Kyoto Protocol.
- Continue to support the development of environmental industries and new technologies for environmental protection and remediation.
- Take further steps to encourage the use of renewable energy.